LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for distributing content in a content distribution network, the method occurring in a computerized device, the method comprising the steps of:

sending a multicast message to a plurality of content engine receivers, the multicast message including content to be distributed among the plurality of content engine receivers;

waiting a predetermined period for a negative acknowledgment message from at least one of the plurality of content engine receivers; and

if a negative acknowledgment message from at least one of the plurality of content engine receivers is received before expiration of a predetermined period, then resending the multicast message a predetermined number of times;

receiving a second negative acknowledgment message from one of the plurality of content engine receivers after resending the multicast message the predetermined number of times; and

sending a unicast message of content to be distributed in response to the second negative acknowledgment message to the one content engine receiver.

2. (Canceled)

3. (Original) The method of claim 1 further comprising the steps of:

receiving a negative acknowledgment message from one of the plurality of content engine receivers after the predetermined period has expired; and

sending a unicast message of content to be distributed to the one content engine receiver in response to the negative acknowledgment message received after the predetermined period has expired.

4. (Original) The method of claim 1 wherein the step of sending further comprises the step of sending the multicast message in response to a negative acknowledgment message from at least one of the plurality of content engine receivers.

5. (Original) The method of claim 4 wherein the step of sending further comprises the steps of:

contacting a primary content engine sender before sending the multicast message;

sending the multicast message to the plurality of content engine receivers if the primary content engine does not respond to the contacting; and

disregarding the negative acknowledgment if the primary content engine does respond to the contacting.

6. (Original) The method of claim 1 wherein the negative acknowledgment includes a request for at least one file not received in the multicast message, and wherein the step of resending the multicast message further comprises resending only the at least one file requested in the negative acknowledgment.

7. (Original) The method of claim 6 wherein a plurality of negative acknowledgments are received during the predetermined period, each negative acknowledgment including a request for at least one file not received in the multicast message, and wherein the step of resending the multicast message further comprises the steps of:

aggregating the files requested in the plurality of negative acknowledgments; and

resending the multicast message including the aggregated files.

8. (Original) The method of claim 1 wherein the multicast message includes a plurality of files, each file of the plurality having an associated count value, the associated count value indicating the number of times the file has been transmitted by the computerized device, the method further comprising the step of incrementing the associated count

value each time the computerized device transmits a file.

9. (Original) The method of claim 8 wherein the negative acknowledgment includes a request for at least one file not received in the multicast message, and wherein the step of resending the multicast message further comprises resending the at least one file until the associated count for the at least one file equals the predetermined number.

10. (Previously Presented) <u>A</u> method for distributing content in a content distribution network, the method occurring in a computerized device, the method comprising the steps of:

      receiving a negative acknowledgment message from one of a plurality of content engine receivers;

      checking a primary content engine sender for status;

      if the primary content engine sender is active,

            a) disregarding the negative acknowledgment message; and

            b) if a second negative acknowledgment message is received, sending a network alert; and

      if the primary content engine sender is inactive, sending a multicast message to the plurality of content engine receivers in response to the negative acknowledgment message.

11. (Previously Presented) A method for maintaining content, the method occurring in a computerized device storing distributed content in a content distribution network, the method comprising the steps of:

      scanning the distributed content stored on the computerized device;

      if missing files are discovered in the scanning step, sending a negative acknowledgment message to a primary content sender requesting the missing files; and

      if a response to the negative acknowledgment is not received from the primary content sender, sending the negative acknowledgment message to a secondary content sender thereby triggering a backup system.

12. (Currently Amended) A content engine sender, comprising:

means for sending a multicast message to a plurality of content engine receivers, the multicast message including content to be distributed among the plurality of content engine receivers;

means for waiting a predetermined period for a negative acknowledgment message from at least one of the plurality of content engine receivers; and

means for if a negative acknowledgment message from at least one of the plurality of content engine receivers is received before expiration of a predetermined period, then resending the multicast message a predetermined number of times;

means for receiving a second negative acknowledgment message from one of the plurality of content engine receivers after resending the multicast message the predetermined number of times; and

means for sending a unicast message of content to be distributed in response to the second negative acknowledgment message to the one content engine receiver.

13. (Currently Amended) A computer program product, stored on computer-readable medium, including computer program logic that, when executed in a processor of a computer system, directs the computer system to perform operations of:

sending a multicast message to a plurality of content engine receivers, the multicast message including content to be distributed among the plurality of content engine receivers;

waiting a predetermined period for a negative acknowledgment message from at least one of the plurality of content engine receivers; and

if a negative acknowledgment message from at least one of the plurality of content engine receivers is received before expiration of a predetermined period, then resending the multicast message a predetermined number of times;

receiving a second negative acknowledgment message from one of the plurality of content engine receivers after resending the multicast message the predetermined number of times; and

sending a unicast message of content to be distributed in response to the second negative acknowledgment message to the one content engine receiver.

14. (Currently Amended) A computerized device for distributing content in a content distribution network comprising:

a processor;

a memory;

a network interface;

an interconnection mechanism coupling the processor, the memory and the network interface;

wherein the memory is encoded with logic that when executed by the processor as a process, causes the computerized device to perform the operations of:

sending a multicast message, via the network interface, to a plurality of content engine receivers, the multicast message including content to be distributed among the plurality of content engine receivers;

waiting a predetermined period for a negative acknowledgment message, received on the network interface from at least one of the plurality of content engine receivers; and

if a negative acknowledgment message from at least one of the plurality of content engine receivers is received before expiration of a predetermined period, then resending the multicast message a predetermined number of times via the network interface;

receiving a second negative acknowledgment message from one of the plurality of content engine receivers after resending the multicast message the predetermined number of times; and

sending a unicast message of content to be distributed in response to the second negative acknowledgment message to the one content engine receiver.

15. (Canceled)

16. (Original) The computerized device of claim 14 wherein the logic further causes the computerized device to perform the operations of:

    receiving a negative acknowledgment message from one of the plurality of content engine receivers after the predetermined period has expired; and

    sending a unicast message of content to be distributed to the one content engine receiver in response to the negative acknowledgment message received after the predetermined period has expired.

17. (Original) The computerized device of claim 14 wherein when the logic causes the computerized device to perform the operation of sending, the logic causes the computerized device to perform the operation of sending the multicast message in response to a negative acknowledgment message from at least one of the plurality of content engine receivers.

18. (Original) The computerized device of claim 17 wherein when the logic causes the computerized device to perform the operation of sending, the logic causes the computerized device to perform the operations of:

    contacting a primary content engine sender before sending the multicast message;

    sending the multicast message to the plurality of content engine receivers if the primary content engine does not respond to the contacting; and

    disregarding the negative acknowledgment if the primary content engine does respond to the contacting.

19. (Previously Presented) The computerized device of claim 14 wherein the negative acknowledgment includes a request for at least one file not received in the multicast message, and wherein when the logic causes the computerized device to perform the operation of resending, the logic causes the computerized device to perform the operation of resending only the at least one file requested in the negative acknowledgment.

20. (Original) The computerized device of claim 19 wherein a plurality of negative acknowledgments are received during the predetermined period, each negative acknowledgment including a request for at least one file not received in the multicast message, and wherein when the logic causes the computerized device to perform the operation of resending the multicast message, the logic causes the computerized device to perform the operations of:

aggregating the files requested in the plurality of negative acknowledgments; and

resending the multicast message including the aggregated files.

21. (Previously Presented) The computerized device of claim 14 wherein the multicast message includes a plurality of files, each file of the plurality having an associated count value, the associated count value indicating the number of times the file has been transmitted by the computerized device, and wherein the logic causes the computerized device to perform the operation of incrementing the associated count value each time the computerized device transmits a file.

22. (Original) The computerized device of claim 21 wherein the negative acknowledgment includes a request for at least one file not received in the multicast message, and wherein when the logic causes the computerized device to perform the operation of resending the multicast message further, the logic causes the computerized device to perform the operation of resending the at least one file until the associated count for the at least one file equals the predetermined number.

23. (Previously Presented) A computerized device for distributing content in a content distribution network, the computerized device comprising:

a processor;

a memory;

a network interface;

an interconnection mechanism coupling the processor, the memory and the

network interface;

wherein the memory is encoded with logic that when executed by the processor, performs operations of:

receiving, via the network interface, a negative acknowledgment message from one of a plurality of content engine receivers;

checking a primary content engine in the memory sender for status;

if the primary content engine sender is active,

a) disregarding the negative acknowledgment message received via the network interface; and

b) if a second negative acknowledgment message is received via the network interface, sending a network alert via the network interface; and

if the primary content engine sender is inactive, sending a multicast message via the network interface to the plurality of content engine receivers in response to the negative acknowledgment message.

24. (Previously Presented) A computerized device storing distributed content in a content distributed network, the computerized device comprising:

a processor;

a memory;

a storage area;

a network interface;

an interconnection mechanism coupling the processor, the memory and the network interface and the storage area;

wherein the memory is encoded with logic for maintaining content in a storage area, the logic, when executed by the processor, performs operations of:

scanning the distributed content stored on the computerized device in the storage area;

if missing files are discovered in the scanning operation, sending, via the network interface, a negative acknowledgment message to a primary content sender requesting the missing files; and

if a response to the negative acknowledgment is not received from the primary content sender via the network interface, sending, via the network interface, the negative acknowledgment message to a secondary content sender thereby triggering a backup system.

25. (Original) A device for distributing content in a content distribution network, comprising;

a memory;

a storage device to store a multicast period and a threshold number of multicast passes;

the storage device further to store content to be distributed in the content distributed network; and

a controller in communication with the memory and the storage device, the controller acting with the memory to control the device, the controller configured to send multicast message to a plurality of content engine receivers, the multicast message to include at least a portion of the content, the controller further configured to wait the multicast period for a negative acknowledgment message from at least one of the plurality of content engine receivers, the controller further configured to resend the multicast message the threshold number of multicast passes if a negative acknowledgement message is received before expiration of the multicast period, the controller further configured to send a unicast message in response to a second negative acknowledgment message received after the multicast message is sent the threshold number of multicast passes.

26. (Original) The device of claim 25 wherein the controller is further configured to send a unicast message in response to a second negative acknowledgment message received after expiration of the multicast period.

27. (Canceled)